The Decision to Submit to a Journal: Another Example of a Valence-Consistent Shift?

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Abstract

In this paper we use a stated choice experiment to study researcher preferences in the discipline of information sciences and to investigate the relative importance of different journal characteristics in convincing potential authors to submit to a particular journal. The analysis distinguishes high quality from standard quality papers and focusses on the question whether communicating acceptance rates rather than rejection rates leads to other submission decisions. Our results show that a positive framing effect might be present when authors decide on submitting a high quality paper. No evidence of a framing effect is found when authors consider a standard quality paper. From a journal marketing perspective, this is important information for editors. Communicating acceptance rates rather than rejection rates might help to convince researchers to submit to their journal.

Keywords: Manuscript submission; Researcher's preferences; Stated choice experiment; Framing

JEL codes: C99 – Stated choice experiment; D8 – Information; O33 – Research and development: diffusion processes; Q51 – Valuation

1. INTRODUCTION

Many academic researchers face high pressure to publish their research results in scientific journals. Publishing in academic journals reinforces their publication record, which is an important input in the evaluation process of their academic performance and thus increases the likelihood of academic promotions and access to new funding. Preferably, researchers want their papers published in journals of the highest possible standing as this contributes most to their prestige and standing among peers. As such, researchers' pursuits to distribute their research findings imply a demand for suitable publication outlets. For most academic papers and in most scientific disciplines, many different journals exist that would provide such an outlet and selecting an outlet then becomes an important and sometimes difficult task for researchers.

Gordon (1984) was one of the first to study the factors that drive a researcher's decision to submit a paper to a particular journal. For the biochemical discipline, he concluded that journals were primarily selected based on what they offer as media of communication. At the same time, however, he also stressed that the results might not be generalizable to other disciplines as these disciplines can differ in many respects, such as the structure of journal literature or the level of the acceptance or rejection rates. Since then, several papers have checked the generalizability of the conclusions drawn by Gordon (1984) to other disciplines: see, for example, Luukkonen (1992) for zoology, biomedicine as well as automation and control technology, Ziobrowski & Gibler (2000) for real estate authors, Bröchner & Björk (2008) for construction management authors, and Cheung (2010) for educational journals. Overall, evidence seems to be mixed. Depending on the discipline, prestige and readership are weighted differently. More importantly, most of these studies also show that, next to prestige and readership, other characteristics play a role.

In general, the factors (see Björk & Holmström (2006); Björk & Öörni (2009); Cheung (2010) and Knight, Steinbach & Levy (2008)) that have been found to drive an author's decision to submit to a given journal can be organized in three categories: author characteristics, journal characteristics and other research characteristics. Firstly, author characteristics include the CV value of the publication, author's evaluation of the editor and past submission success. Secondly, journal characteristics include the quality of the review process, publication delays, submission rejection risk, service level of the journal, technical features of the journal, author charges, local visibility, professionalism, influence, credibility and prestige of the journal, the likelihood of acceptance, and the timeline from submission to publication. And finally other research characteristics include impact on

scientists and practitioners, the potential impact or visibility of the paper, communication strategies, and philosophical and ethical issues. The importance attached to a particular factor by an author can be influenced by having editorial experience or being affiliated to a higher ranked university; however the stage of a researcher's career does not seem to matter (Cheung (2010)).

Besides the demand side of the publication market, the supply side also matters. Among publication platforms, competition emerges as journals are competing among each other for the best papers in their field. For the editors of these journals it is therefore important to understand the – sometimes implicit – decision process that takes place in the minds of the authors. For example, in a study focusing on real estate journals, Gibler & Ziobrowski (2002) investigated strategies that might help journal editors to successfully attract the best research to their journal. Overall, Gibler and Ziobrowski find that real-estate authors tend to agree on the journal ranking. Also they tend to have a preference bias towards journals in which they already have published, suggesting that – in order to increase the ranking of the journal – one should spend effort on seeking new authors as this, in the longer run, will enlarge the potential author base. For editors the question then becomes how to convince scholars to submit a paper to their journal, without actually lowering the quality standards for accepting papers.

With the current paper we contribute to this literature by investigating the relative weight attached to factors in a researchers' decision process for authors active in information sciences. We build upon the data used and metric introduced by Rousseau & Rousseau (2012), who use a stated choice experiment to assess the relative importance of different journal attributes for the manuscript submission decision by using the 'willingness-to-wait' metric. In this paper we check the robustness of this preference metric by distinguishing two alternative probability descriptions to communicate the likelihood of acceptance or rejection when submitting a paper. More precisely, we explore how a journal's decision to communicate *acceptance* rates rather than equivalent *rejection* rates influences a researcher's decision of whether or not to submit to that journal. In addition, we investigate whether this communication strategy influences only the perceived importance of the journal attribute in question or whether it influences the assessment of the complete journal.

This type of research also fits within the strand of literature that studies framing effects, i.e. studies in which researchers investigate how decision makers respond differently to different but objectively equivalent descriptions of the same choice problem (Levin, Schneider & Gaeth (1998)). The presence of framing effects in general is supported by

overwhelming evidence (see our discussion in section 2). Therefore, it is worthwhile to investigate whether framing effects are also present in the choice process underlying the decision to submit a paper to a journal. From a journal marketing perspective, this information can help editors to decide whether to communicate acceptance rates rather that rejection rates.

This paper tests the hypothesis that positive framing of attributes leads to more favorable evaluations than negative framing. In other words, we test whether communication of a journal's acceptance rates leads to a higher number of paper submissions than communication of a journal's rejection rates. Thus we test for the presence of a valence-consistent shift (Levin, Schneider & Gaeth (1998)) in the choices made by researchers when confronted with a positively or negatively formulated journal attribute. Our results show that a valence-consistent shift may be present when authors are deciding on the submission of a high quality paper. However, no evidence of such a shift in preferences is found when authors considered a standard quality paper. This suggests that expressing the probability of having a paper published in an academic journal as an acceptance rate rather than as a rejection rate, is likely to have a positive impact on the decision to submit to a journal.

The paper is structured as follows. In section 2 we discuss framing effects and describe the literature concerning valence-consistent shifts. Section 3 presents the method used to value the impact of journal attributes on researchers submission decisions: namely stated choice experiments. In section 4 we describe the dataset and the estimation model is presented in section 5. The results and their discussion are included in section 6. Section 7 concludes.

2. FRAMING EFFECTS

Many instances have been described in, for example, psychology, medicine and economics, where equivalent descriptions of a decision problem lead to systematically different decisions (Levin, Schneider & Gaeth (1998)). Valence framing puts the same information in a negative or in a positive light. Over the past decades, evidence has been piling up to support the fact that these framing effects do exist (see Kim, Kim & Marshall (2013) for a recent overview).

Framing refers to the fact that equivalent descriptions of a decision problem lead to systematically different decisions when presenting information in positive or negative terms. In our setting, we assume that the decision to submit a paper depends on the

characteristics of the journal under consideration (one of which is the probability of acceptance or rejection), the quality of the paper to be submitted and on the personal characteristics of the researcher. We then assess the importance of each of these characteristics in the decision process.

Typically three different types of framing can being distinguished: risky-choice framing, attribute framing and goal framing (see Levin, Schneider & Gaeth (1998)). Since the framing in this paper does not exactly match one of these types of framing and has elements of both attribute framing and risky-choice framing, we discuss those two types of framing.

Firstly, settings looking at risky-choice framing face respondents with a set of two options among which they have to choose the most preferred one. The options are usually presented as a gamble, described in terms of probabilities of gains or losses and a sure outcome. Both options have the same expected value. A common result is that respondents prefer the sure outcome when options are presented in terms of gains, but prefer the gamble when options are presented in terms of losses. Stated differently, respondents are risk-seeking when faced with losses, but are risk-averse when faced with gains. This type of framing effect was originally described by Kahneman & Tversky (1979).

Secondly, and most relevant to our setting, attribute framing looks at how manipulating one attribute in a given choice context affects people's ratings or evaluations of a given option (see, for example, Howard & Salkeld (2009) and Kim, Kim & Marshall (2013)). The existence of attribute framing has been confirmed in a large number of settings (Levin, Schneider & Gaeth (1998); Kim, Kim & Marshall (2013)). Typically, the same alternative is rated more favorably when attributes are described positively rather than negatively. In this setting, a 'valence-consistent shift' consistently occurs (Levin, Schneider & Gaeth (1998)): this phenomenon implies that the positive framing of attributes leads to more favorable evaluations than negative framing. For example, research and development (R&D) teams were allocated more funds when their performance rates were framed in terms of successes rather than failures (Duchon, Dunegan & Barton (1989)). The valence-consistent shift in attribute framing is a robust effect and it is typically explained by stating that the representation of information in a person's associative memory makes him or her attend to either the positive or negative aspects of an evaluation attribute (Levin & Gaeth (1988)).

We now want to test the presence of such a valence-consistent shift in our setting. If such a shift is present, this would imply that papers are more likely to be submitted to journals when the journal's discrimination rate for submitted papers is framed in terms of

successes (probability of acceptance) rather than failures (probability of rejection). The likelihood of finding these types of attribute framing effects depends on a number of factors. For example, topics involving issues of strongly held attitudes or high personal involvement are less susceptible to attribute framing effects (Levin, Schneider & Gaeth (1998)). Furthermore, the framing effect is found to be negligible, when the framed information receives little or no weight in the judgment process (Levin, Schneider & Gaeth (1998)). Finally, framing effects are more likely to occur when decision makers are asked to make choices in settings with little additional information because this is more likely to lead to a more thorough processing of the framed choice attributes (Kuvaas & Selart (2004)).

3. METHOD: STATED CHOICE EXPERIMENT

The choice process of researchers, when selecting a journal for manuscript submission, nicely fits the framework of a choice experiment. A choice experiment is based on the idea that any good or service can be described by its characteristics or attributes and by the levels that these attributes take[1]. Thus we can describe a journal by its relevant characteristics or attributes. Based on a literature review, a pre-test and survey results reported by Leyman, Vandevelde, Van Rossem & Groenvynck (2011), we selected the following six attributes: quality of the editorial board, quality of referee reports, probability of being accepted (rejected), ISI impact factor, waiting time before a final decision is reached, and standing of a journal among peers (see Table 1).

Furthermore, we conjecture that the submission decision will also depend on the quality (as perceived by the author) of the paper to be submitted. Therefore, the same experiment will be repeated twice for each respondent: first, for a high quality, innovative paper, then for a decent, yet more standard paper. Note that we do not explicitly consider 'correspondence between the topic of the paper and the scope of the journal' as a characteristic or attribute of the journal. We implicitly assume either that the paper under consideration is not that specialized that it needs a highly specialized journal, or that the check has already been made by the author when facing the choice experiment.

The sample of respondents is split in two subsamples. In the first subsample, respondents are confronted with choice sets containing 'probabilities of acceptance'; while in the second subsample, authors are faced with logically equivalent 'probabilities of rejection'. Thus, the first sample reads an acceptance rate of, for example, 70%, while the second sample faces the same choice set, but with a rejection rate of 30%. Thus, we relied on a between-subject design to study the presence of attribute framing effects. A between-

subject design avoids distortions caused by practice, sensitization and carry-over effects (Charness, Gneezy & Kuhn (2012)). Moreover, between-subject designs are more conservative in nature. However, to increase the validity of the results it is important that the assignment of respondents to questionnaires occurs randomly. Also, the statistical power of between-subject designs is often lower than that of within-subject designs (Charness, Gneezy & Kuhn (2012)).

Attribute	***Attribute levels***	***Variable name***
Quality of the editorial board	Unknown	-
	Highly regarded editors	HighEditor
Quality of referee reports	Low - not useful at all	-
	Average - useful comments on style	MedRef
	High - useful comments on style and content	HighRef
Probability of being accepted	Low - less than 30% *(High – more than 70%)*	LowProbAcc (*HighProbRej*)
OR	Average - 30% to 70% *(Average - 30% to 70%)*	MedProbAcc (*MedProbRej*)
Probability of being rejected	High - more than 70% *(Low - less than 30%)*	-
ISI impact factor	No impact factor	-
	Low impact factor - less than 0.5	LowImpact
	Average impact factor - between 0.5 and 2	MedImpact
	High impact factor - more than 2	HighImpact
Waiting time before final decision: accept or reject	1 month 3 months 6 months 9 months	Time
Standing of the journal among peers	Low	-
	Average	MedStand
	High	HighStand

Table 1: Attributes and attribute levels.

The attributes and the levels we selected for each of them are listed in Table 1. Except for the waiting time attribute, all attributes are of qualitative nature. Complete enumeration of all possible journal varieties based on the different combinations of attribute levels, thus leads to $2 \times 3^3 \times 4^2 = 864$ different journal varieties. We limited the number of varieties included in our questionnaire to 26 in order to keep the number journals to be evaluated manageable. The strategy to select these journals is based on an orthogonal main effects plan (OMEP) constructed in SPSS, which allows the uncorrelated estimation of all main effects influencing the decision process (Street, Burgess & Louviere (2005)).

The 26 journal varieties are randomly paired into 13 different choice sets. On top of the two journal alternatives, every choice set also includes a back-up journal. The back-up

journal can be considered an opt-out option in our choice experiment. It represents a handy low quality journal to which a paper could always be send. This back-up journal is assumed to have the following characteristics: an editorial board of unknown quality, low quality of the referee reports, high (low) probability of acceptance (rejection), no ISI impact factor, a one month waiting time before a final decision is made and a low standing among peers. See Table 2 for an example.

Respondents should then state their choice for each of the choice sets. The choice sets are ordered randomly when presented to the respondents so as to minimize any impact of learning and fatigue that might otherwise be present.

	Journal A	***Journal B***	***Back-up journal***
Quality of editorial board	Unknown	Highly regarded editors	Unknown
Quality of referee reports	Low (not useful at all)	Low (not useful at all)	Low (not useful at all)
Probability of being accepted	Average (between 30% and 70%)	Average (between 30% and 70%)	High (more than 70%)
ISI impact factor	No impact factor	Low impact factor (less than 0.5)	No impact factor
Waiting time before final decision (accept or reject)	9 months	3 months	1 month
Standing among peers	Low	Average	Low

Table 2: Example of a choice set for the 'probability of acceptance' subsample.

Apart from the choice experiment, the questionnaire includes two additional parts, dealing with socio-demographic questions and the researchers' current submission practices, respectively. The socio-demographic content relates to nationality, age, affiliation, gender, research discipline and current employment. With respect to the researchers' current submission practices, we collect information such as the number of previous publications in the past two years, the number of submissions in the past two years, estimated (subjective) probability that a submitted manuscript is accepted for publication, the motivation for publishing and the respondents' journal selection strategies.

The next section describes the data collection process, the selection of the sample and response rates, and the socio-demographic characteristics of the respondents.

4. THE DATASET

To select a representative sample of researchers in the field of information sciences, we constructed a list of all 2011 members of the International Society of Scientometrics and Informetrics (ISSI) and all authors who published in Scientometrics, the Journal of the

American Society of Information Science & Technology or the Journal of Informetrics in 2010 or in the first six months of 2011 and who included their email address in the published manuscript. Removing duplicates resulted in 1230 distinct email addresses. The resulting list of researchers mainly contained information scientists (in the broad sense), although some authors explicitly classified themselves outside the field of informetrics. The data were collected in two rounds. A first set 1000 of respondents was invited by email (July 2011) to fill out the online questionnaire (750 received the 'probability to accept' version and 250 the 'probability of reject' version). A reminder was sent one month after the initial invitation. In November 2011, an additional set of 230 researchers was invited to fill in the 'probability to reject' version of the questionnaire. The analysis of Rousseau and Rousseau (2012) used the data of the 'probability to accept' version.

In total we received 459 completed questionnaires: 291 for the 'probability of acceptance' (or 'A') version, 168 for the 'probability of rejection' (or 'R') case. Of these, 210 were fully completed and 81 were partially completed for the A-version, while 120 were fully completed and 48 partially for the B-version. Thus, for the full dataset, we have a response rate[2] of 459/ (1230-56) = 39.09% (or 28.11% if only the fully completed questionnaires are taken into account), which is high for an online questionnaire. As a case in point, Saunders, Saunders, Lewis & Thornhill (2011) mention a typical response rate of 11% for internet surveys and of 30% for online surveys conducted within a specific company.

Respondent characteristics

Table 3 summarizes some descriptive statistics for the two subsamples. Overall, both samples are very much alike in terms of the described characteristics. Some 65% of the respondents of the A-sample indicated that the majority of their research is situated within the informetrics discipline. For the R-sample, this percentage is 55%. About 68% of the respondents was male in both samples, just above 75% was affiliated to a university and about 75% has a PhD. Moreover, all age categories are present in the sample. The geographical distribution of the respondents, measured by the country of their current affiliation, is dominated by Europe (including Russia) (A: 46%, R: 43%), followed by Asia (including Turkey) (A: 25%, R: 29%) and North America (A: 18%, R: 13%).

Over half of the respondents indicated that they had a permanent contract and were not actively seeking for a new position in the next two years. Some respondents had a permanent contract but nevertheless were seeking a new position (A: 10%, R: 15%). About 30% of the respondents in both subsamples had a temporary contract. Slightly over

half of the respondents with a temporary contract was actively looking for a new position within the next two years.

Characteristic	% respondents in sample		Characteristic	% respondents in sample	
	Prob. Accept.	Prob. Reject.		Prob. Accept.	Prob. Reject.
Younger than 26 years	3.3%	0.8%	**Bibliometrics and/or scientometrics**	49.3%	46.8%
Between 26 and 35 years	28.4%	24.0%	**Inform. sciences, but not bibliometrics**	14.9%	9.7%
Between 36 and 45 years	25.6%	32.0%	**Computer sciences**	6.5%	7.3%
Between 46 and 55 years	14.9%	27.2%	**Economics**	5.1%	6.5%
Between 56 and 65 years	20.0%	14.4%	**Other social sciences (excl. economics)**	8.4%	6.5%
Older than 65 years	7.9%	1.6%	**Mathematics and physics**	3.3%	6.5%
			Other disciplines	12.5%	16.9%
Affiliated* to university	75.4%	79.2%	**With doctoral degree**	74.4%	79.2%
Affiliated to research center	22.3%	20.8%			
Government	7.44%	5.6%	**Male**	68.8%	68.0%
Other affiliations	13.0%	12.8%	**Female**	31.2%	32.0%
Europe	45.8%	43.2%	**Temporary contract, seeking**	17.7%	18.6%
Asia	25.2%	28.8%	**Temporary contract, not seeking**	15.4%	12.1%
North America	18.2%	12.8%	**Permanent contract, seeking**	10.2%	15.3%
South America	6.1%	10.4%	**Permanent contract, not seeking**	54.9%	54.0%
Australia	1.9%	2.4%	**Not reported**	1.9%	0.0%
Africa	2.8%	2.4%			

* More than one affiliation could be selected

Table 3: Sample characteristics.

Considering the respondents' publishing behavior (see Table 4), we find that, for both samples, less than 10% of the respondents did not publish at all in the past two years, while a significant share published over ten papers (A: 16%, R: 10%). Overall, respondents in both samples seem to be quite optimistic about getting their work published. More than 35% of both samples indicated that the expected probability of acceptance of a paper by a particular journal to which they submit was above 70%.

	Prob. Accept.	Prob. Reject.		Prob. Accept.	Prob. Reject.
Number of publications and accepted papers in 2010 and 2011			**Estimated probability of a paper being accepted for publication by a particular journal**		
No papers	8.4%	3.2%	Less than 10%	1.9%	1.6%
One paper	12.6%	8.0%	Between 10% and 30%	7.9%	9.7%
Between 2 and 5 papers	42.3%	51.2%	Between 30% and 50%	21.4%	24.2%
Between 5 and 10 papers	18.6%	27.2%	Between 50% and 70%	31.6%	28.2%
More than 10 papers	16.3%	10.4%	More than 70%	35.8%	36.3%
No response	1.9%	0.0%	No response	1.4%	0.0%

Table 4: Publication behavior of the respondent.

Some descriptive results

Before discussing the estimation results regarding a researcher's choice to submit a paper to a particular journal, we first discuss the responses on two questions related to the respondent's submission behavior.

The first question focuses on the reasons why respondents want to publish papers. Respondents were allowed to indicate a maximum of three motivations. In Figure 1, the percentages indicate the percentage of respondents that selected the corresponding motivation in its top three. Again, we observe that both surveys generate similar results[3]. By far the two most popular reasons to publish are distributing research results and contributing to scientific progress. Three career related motivations complete the top five.

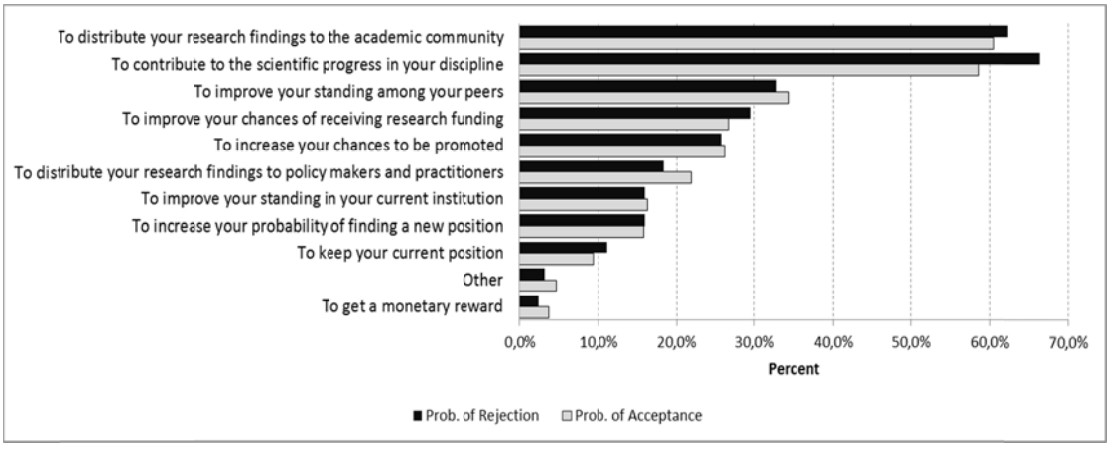

Figure 1: Why submit a paper?

The second question asks respondents to indicate the three most important aspects that were taken into account when selecting a journal to submit to (see Figure 2). For this

question, both subsamples generate significantly different results for '*General standing of the journal*' and '*Time until a final decision is received*'. The '*General standing'* of the journal is indicated relatively more in the A-sample than in the R-sample, whereas '*Time until a final decision is received*' was indicated relatively more by the R-sample.

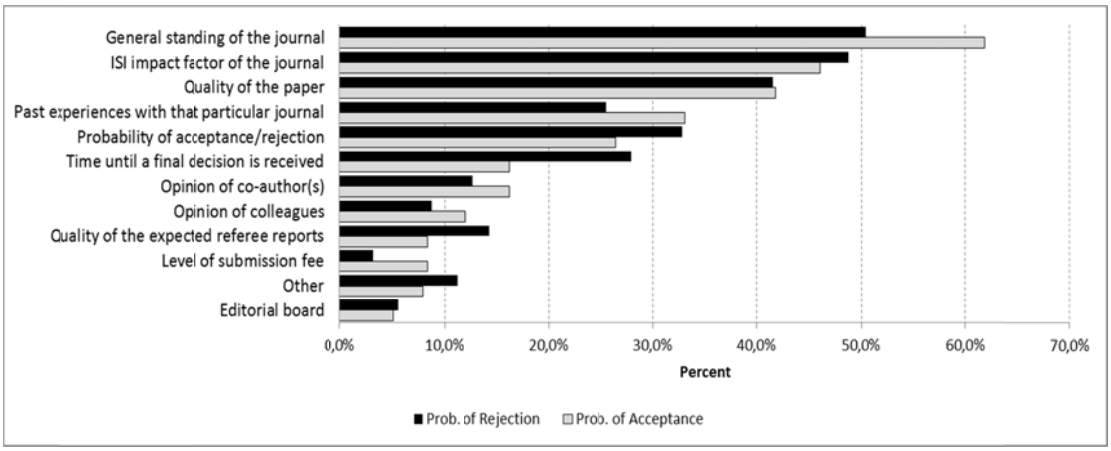

Figure 2: Important considerations when selecting a journal?

Despite the statistically different shares for both subsamples, the general standing of the journal remains the most important aspect to consider when deciding where to submit. The impact factor and the quality of the paper are the second and third most important aspect, respectively. A closer look at the data reveals that '*General standing'* and '*Impact factor*' are negatively correlated, suggesting these aspects are perceived as equivalent. Most respondents only indicate one of both: 12% indicated none, 16% indicated both and 72% indicated only one.

5. RESULTS

This section splits up in two parts: the first subsection describes the model estimates for the so-called main effects model, the second subsection presents the results for a model containing additional socio-demographic and other covariates. In both subsections, we focus on the difference between the '*Probability of acceptance*' (A) results and the '*Probability of rejection*' (R) results for a given quality level of the paper as well as on the results for a high quality paper (HQ) compared to a standard quality (SQ) paper. The possible impact of the communication strategy and thus the presence of a valence consistent shift would show in changes in the likelihood of choosing a particular journal over the back-up journal as well as in the magnitude of the preference weights.

Table 5 classifies and labels the different cases. We distinguish four basic models, which will be labeled HQA, HQR, SQA and SQR.

		Probability to	
		Accept	**Reject**
Paper quality	***HQ***	HQA	HQR
	SQ	SQA	SQR

Table 5: The different models.

The next section describes the results for the main effects versions of these models. Section 5.2 then presents the results for the models with interaction variables.

5.1. The Main effects model

We first briefly turn to the question of whether, for a given type of framing, the HQ- and SQ-models are the same (vertical comparison in Table 5). A likelihood-ratio test indicates that, for both framings, the HQ- and the SQ-model are statistically different (A-framing: $\chi^2_{N=12} = 503{,}12$ ($p = 0.000$) and R-framing: $\chi^2_{N=12} = 257{,}85$ ($p = 0.000$), respectively). For the sake of comparison and clarity, we treat the HQ- and the SQ-models separately.

5.1.1. Comparing the 'Probability to Accept' and the 'Probability to Reject' models.

In Table 6 and Table 7 we summarize the estimation results for the HQ- and SQ-models, respectively. The evidence of the presence of a valence consistent shift is discussed later in section 5.1.2. In global, all models show statistically significant coefficients with the expected sign (Rousseau and Rousseau, 2012). All alternative specific constants (ASC) are positive and statistically significant, indicating that authors prefer a journal with other characteristics than the reference journal to submit their work to. Overall, authors prefer less waiting time, better editors, better referee reports, higher impact factors and a higher journal standing.

The results are more complex to interpret for the probability attributes. As expected, less favorable probabilities of acceptance are disliked. This effect is much less convincing when R-framing is used, suggesting that the impact of the probability attribute on the journal choice differs according to the framing that is used.

Looking at parameter estimates in the HQ-case, we observe in Table 6 that, ceteris paribus, authors do not respond to an increase in the probability of rejection. However, when the

probability of acceptance is used as an attribute, the response is stronger and significant. This suggests that authors are less responsive to information on rejection rates than to information on acceptance rates when considering to submit a paper of high quality.

The results for the SQ-model in Table 7 suggest that authors are less inclined to take the risk of a paper not being accepted or being rejected by the journal editor. Ceteris paribus, authors are more inclined to go for a journal with higher chances of success. Contrary to the HQ-case, authors do not seem to distinguish between acceptance or rejection framings.

5.1.2. A valence-consistent shift?

The presence of a valence-consistent shift is assessed by comparing the A- and R-models for a given quality level of the paper (HQA versus HQR and SQA versus SQR). The only difference between the HQA (or SQA) and the HQR (or SQR) choice experiment is in the formulation of the probability attribute. As discussed in the introduction and section 2, this is an application of framing and any statistically significant difference between the estimated preference structures of both models can only be due to this framing. Thus, by comparing the estimates of the A-model with those of the R-model, we are able to identify, if present, a bias in the submission decision depending on the positive or negative framing of the attribute.

First we test whether the A- and R-model describe similar preferences for a given type of paper quality. Therefore, we pool the data for the A- and R-surveys to estimate a 'restricted' model in which the coefficients of all corresponding covariates are constrained to be equal. This is the *'Joint'* model described in the last two columns of Table 6 and Table 7. We then test the null-hypothesis that the separately estimated parameters of the A- and R-models are all equal to the corresponding estimates in the constrained model. This hypothesis can be rejected for the HQ-model ($p = 0{,}021$), but not for the SQ-model ($p = 0{,}808$) (see Table 8). Thus, for the SQ-paper, no indication is found for the presence of a valence consistent shift. This could reflect the fact that, when it comes to selecting a journal to submit a standard paper, preferences are less outspoken.

Based on these results, the focus of the further discussion will be on the models for the HQ-paper. To do this, the set of explanatory variables is split into three, the first set containing the attribute specific constants (ASCs), the second set the probability attributes and the third set all other journal attributes. Our conjecture is that – if present – a valance-consistent shift will show up via the ASCs or the weights attached to the probability attributes, or both. A positive ASC signals a researcher's eagerness to submit a paper to another journal than the back-up journal. These constants incorporate the effect of all

journal characteristics not described by the attributes included in the choice experiment[4]. However, we expect to find higher values for the ASC in the positively framed choice experiment if a valence consistent shift is present. Thus respondents would be less likely to select the back-up journal when information is expressed as a probability of acceptance rather than as a probability of rejection.

Moreover, a valence consistent shift may also show up via the estimated weights attached to the probability attributes. We hypothesize that a positive framing of the probability attribute has a stronger impact on choices than a negatively framed probability (Putrevu (2010)). The presence of a valence consistent shift is then identified by carrying out different hypothesis tests. These likelihood-ratio tests are summarized in Table 8.

	HQA Model		***HQR Model***		***Part. Joint Model***		***Joint Model***	
	Coef.	**Std. Err.**	**Coef.**	**Std. Err.**	**Coef.**	**Std. Err.**	**Coef.**	**Std. Err.**
$ASC - A$	2,0797 ***	0,2233			**2,0217 *****	**0,2231**	1,6900 ***	0,1987
$ASC - R$			1,1926 ***	0,3043	**1,2276 *****	**0,3618**	1,6900 ***	0,1987
Time	-0,0968 ***	0,0251	-0,0851 ***	0,0288	**-0,0886 *****	**0,0186**	-0,0890 ***	0,0185
HighEditor	0,8249 ***	0,0889	0,6170 ***	0,1057	**0,7612 *****	**0,0689**	0,7576 ***	0,0689
MedRef	0,4068 ***	0,1468	0,3268 *	0,1742	**0,3560 *****	**0,1109**	0,3585 ***	0,1105
HighRef	0,7461 ***	0,1572	0,5761 ***	0,1810	**0,6802 *****	**0,1193**	0,6778 ***	0,1191
LowImpact	0,5439 ***	0,1291	0,8110 ***	0,1415	**0,6585 *****	**0,0950**	0,3089 ***	0,0949
MedImpact	1,0742 ***	0,1730	1,2528 ***	0,1874	**1,1675 *****	**0,1259**	1,1635 ***	0,1255
HighImpact	1,9131 ***	0,1670	2,0562 ***	0,2169	**1,9782 *****	**0,1309**	1,9755 ***	0,1306
MedStand	0,4129 ***	0,1030	0,5413 ***	0,1215	**0,4509 *****	**0,0782**	0,4526 ***	0,0779
HighStand	1,1212 ***	0,2081	0,7906 ***	0,2152	**0,9612 *****	**0,1481**	0,9606 ***	0,1478
LowProbAcc	-0,4459 ***	0,0807	-	-	**-0,4142 *****	**0,0785**	-0,3089 ***	0,0641
MedProbAcc	-0,2263 **	0,1053	-	-	**-0,1488**	**0,0924**	-0,0927	0,0768
HighProbRej	-	-	-0,0792	0,1049	**-0,1346**	**0,0985**	-0,3089 ***	0,0641
MedProbRej	-	-	0,0962	0,1133	**-0,0032**	**0,1017**	-0,0927	0,0768
Pseudo Loglik.	-1674,7852		-1053,183		**-2733,217**		-2740,580	
Pseudo R^2	0,4514		0,4086		**0,4347**		0,4332	
N	8337		4866		**13203**		13203	

Table 6: Estimation results for the main effects **HQ**-model.

	SQA Model		*SQR Model*		*Part. Joint Model*		*Joint Model*	
	Coef.	**Std. Err.**	**Coef.**	**Std. Err.**	**Coef.**	**Std. Err.**	**Coef.**	**Std. Err.**
$ASC - A$	1,3011 ***	0,1773			1,3116 ***	0,1669	**1,2502 *** **	**0,1400**
$ASC - R$			1,1643 ***	0,2301	1,1472 ***	0,2173	**1,2502 *** **	**0,1400**
Time	-0,0987 ***	0,0131	-0,0970 ***	0,0183	-0,0981 ***	0,0107	**-0,0980 *** **	**0,0107**
HighEditor	0,0776	0,0646	0,0310	0,0811	0,0598	0,0505	**0,0599**	**0,0504**
MedRef	0,0053	0,0884	0,0260	0,1037	0,0134	0,0675	**0,0142**	**0,0674**
HighRef	0,4797 ***	0,0930	0,3714 ***	0,1119	0,4400 ***	0,0716	**0,4404 *** **	**0,0714**
LowImpact	0,4897 ***	0,0790	0,6310 ***	0,1081	0,5414 ***	0,0638	**0,5410 *** **	**0,0637**
MedImpact	0,6623 ***	0,0936	0,6903 ***	0,1312	0,6715 ***	0,0761	**0,6710 *** **	**0,0760**
HighImpact	0,5432 ***	0,1091	0,5428 ***	0,1367	0,5424 ***	0,0851	**0,5427 *** **	**0,0851**
MedStand	0,3175 ***	0,0626	0,2037 ***	0,0744	0,2756 ***	0,0482	**0,2752 *** **	**0,0481**
HighStand	0,3681 ***	0,0977	0,2619 **	0,1326	0,3286 ***	0,0784	**0,3280 *** **	**0,0784**
LowProbAcc	-0,7809 ***	0,0848			-0,7661 ***	0,0820	**-0,7145 *** **	**0,0671**
MedProbAcc	-0,3434 ***	0,0688			-0,3247 ***	0,0683	**-0,2426 *** **	**0,0536**
HighProbRej			-0,6042 ***	0,1105	-0,6272 ***	0,1077	**-0,7145 *** **	**0,0671**
MedProbRej			-0,0723	0,0848	-0,1033	0,0837	**-0,2426 *** **	**0,0536**
Pseudo Loglik.	-2527,989		-1482,875		4013,044		**-4014,716**	
Pseudo R^2	0,1720		0,1678		0,1700		**0,1697**	
N	8337		4866		13203		**13203**	

Table 7: Estimation results for the main effects **SQ**-model.

First we test whether the preference weights for the third set of (other) journal attributes are equal in the A- and R-model. We find no statistical evidence that preferences for the set of other attributes are affected by the type of framing used (Table 8). This suggests that the evidence of valence consistent shift that was found when testing the joint equivalence of all preference weights has to do with the probability attributes and/or the ASCs.

Next we test whether the valence consistent shift can be linked to the ASCs or to the probability attributes, by separately testing the equality of their preference weights under both framings. We find that the hypothesis of equal weights for the *probability attributes* cannot be rejected ($p = 0{,}202$). The hypothesis of equal *alternative specific constants* under both framings is however rejected ($p = 0.015$). The *ASCs* are statistically significant in both framings and for both paper qualities, but the constants are larger in the A-frame than in the R-frame for the HQ-paper, indicating that respondents are more inclined to opt for another journal than the backup journal in the A-frame.

Equality of preference weights jointly tested for…	H_0: *Preference weights in the A-model and R-model are equal in the…*			
	Main effects		*Main Effects and Interactions*	
	HQ model	*SQ model*	*HQ model*	*SQ model*
Other attributes	0,416	0,886	0,217	0,653
Other + Probability attributes + ACSs	**0,021**	0,808	**0,037**	0,593
Other attributes + ACSs	**0,015**	0,814	0,178	0,717
Other + Probability attributes	0,202	0,745	**0,027**	0,636

Table 8: p-values of hypothesis tests for equality of preference weights.

To summarize: for the SQ-paper, the results suggest that authors are not subject to a bias due to our attribute framing. It is also clear that low acceptance or high rejection rates are disliked quite strongly. In the case of a HQ-paper, authors seem to be much more sensitive to acceptance rate information, whereas rejection rate information is ignored by our respondents. The effect shows up via a shift away from the back-up journal and not via the probability attributes.

5.1.3. Willingness-to-wait (WTW) results for the main effects model

The impact of different framings on the journal choice decision can also be expressed more intuitively by calculating the willingness-to-wait (WTW) based on the estimated models. If the purpose is to evaluate the *change in one attribute* and if deterministic utility is linear in the attributes, the *marginal willingness to wait* for a change in a single attribute k is defined as (Champ et al., 2003):

$$WTW_n^k = -\left(\frac{\beta^k + \sum_l \alpha^l Z_n^l}{\beta^W}\right). \quad (1)$$

With β representing the vector of parameters to be estimated and Z^l the socio-demographic characteristics. These WTW values are a metric for a researcher's preferences and do not reflect actual waiting times (Rousseau and Rousseau, 2012; Poelmans and Rousseau, forthcoming). A positive WTW value expresses the number of additional months one is *willing* to wait for a final decision of a journal with that particular attribute level rather than with the reference level for this attribute, *keeping all other attribute levels constant*. For that reason, it also called the *marginal* WTW. The WTW values for the two withheld models are summarized in Table 9. All covariates are categorical and reflect the absence or presence of a particular attribute level in the journal. For all covariates the reference level corresponds to the level this attribute takes for the back-up journal (see Table 2, last column).

The WTW value of the ASCs is positive, which is an indication of the eagerness of the researchers to publish in another journal than the back-up journal. It captures the value

for researchers, expressed in waiting time, of publishing a paper in a journal with other characteristics than those of the backup journal.

	HQ		*SQ*	
	WTW	**Conf. Int.**	***WTW***	**Conf. Int.**
ASC − Accept	22,81***	(13,3 – 32,4)	12,76***	(9,5 – 16,0)
ASC − Reject	13,85***	(4,50 – 23,2)	12,76***	(9,5 – 16,0)
HighEditor	8,59***	(4,5 – 12,7)	0,61	(-0,4 – 1,6)
MedRef	4,02***	(1,8 – 6,3)	0,14	(-1,2- 1,5)
HighRef	7,68***	(3,2 – 12,1)	4,50***	(2,6 – 6,4)
LowImpact	7,43***	(2,9 – 12,0)	5,52***	(3,6 – 7,4)
MedImpact	13,17***	(5,6 – 20,8)	6,85***	(4,6 – 9,1)
HighImpact	22,32***	(11,7 – 33,0)	5,54***	(3,5 – 7,6)
MedStand	5,09***	(3,1 – 7,1)	2,81***	(1,8 – 3,8)
HighStand	10,85***	(7,6 – 14,1)	3,35***	(1,9 – 4,7)
Low Prob Acceptance	-4,67***	(-7,4 - -1,9)	-7,29***	(-9,3 - -5,3)
Med. Prob Acceptance	-1,68*	(-3,5 - 0,1)	-2,48***	(-3,6 - -1,4)
High Prob. Rejection	-1,52	(-3,9 - -0,9)	-7,29***	(-9,3 - -5,3)
Med. Prob. Rejection	0,04	(-2,2 - -2,3)	-2,48***	(-3,6 – -1,4)

Legend: * $p < .10$; ** $p < .05$; *** $p < .01$

95% confidence intervals calculated with the delta method.

Table 9: Marginal WTW values for the main effects models.

Based on the size of the WTW estimates, 'Impact factor' and 'General standing' are the most important attributes in the HQ-case, but less so in the SQ-case. In general, comparing WTW values for HQ- and SQ-papers, we observe that for most covariates the WTW values are higher for a HQ-paper than for a SQ-paper, which confirms our intuition that, ceteris paribus, one would be more patient to publish a high quality paper in a given journal.

We also find that the lower the probability of acceptance, the less one is willing to wait, which again is in line with our intuition. Comparing the HQ- and SQ-models reveals that the lower acceptance rates affect WTW values more if one is submitting a paper of *Standard Quality*. Authors with a standard quality paper just want the paper published, no matter where and thus are not willing to wait too long if the likelihood of success (failure) is low (high). For a HQ-paper, the probability attribute is relatively less important. Overall, the WTW values are in line with our intuition that researchers would be more patient and are willing to risk having to wait longer with papers of high quality.

5.2. The role of socio-demographic covariates

This section checks the robustness of our results by focusing on whether and to what extent author choices and the presence of a valence consistent shift can be explained by

individual characteristics of the respondent. We conjecture that characteristics such as an individual's research focus, his cultural background or being less or more self-confident could have an impact via the ASC and the probability attributes.

A respondent's focus on research is captured by having a PhD, which is highly correlated with publishing experience and age. As a proxy for cultural background we distinguish two continental backgrounds: 'Europe & North America' and 'Other continents'. An individual's level of self-confidence is measured by his or her perception of the likelihood that a submitted paper would be accepted for publication. We distinguish two categories: 'less than 50%' and 'more than 50%' probability of acceptance. The reference person is a European or North American respondent with a PhD who perceives the likelihood of having a paper accepted for publication as more than 50%.

All socio-demographic variables are dummy coded and we impose that the interaction effects for the probability attributes are the same for high (low) and medium probability of rejection (acceptance) levels. The interaction effects linked to the ASCs are allowed to differ according to the framing used. We further impose that the preference weights of the other attributes are the same in both framings, while the preference weights for the probability attributes and the ASCs can vary over the two framings.

In Table 10 we present the estimates for both models. The attribute preference weights are found to be close to the estimated values in the main-effects-only model. Thus preferences seem fairly homogenous, i.e. most interaction variables do not contribute significantly to explaining choice heterogeneity. However, for both paper qualities a likelihood ratio test was used to test the null-hypothesis that all interaction effects are equal to zero. This hypothesis is rejected for both models. Thus some preference heterogeneity seems to be present in our dataset.

5.2.1. The HQ-model

In the model describing the submission preferences for a HQ-paper, we find positive and significant values for the ASCs. The ASC linked to journals where an A-framing was used remains larger than the ASC linked to journals when an R-framing was used, indicating that, ceteris paribus, researchers in the reference category (self-confident European or North American researchers with a PhD) show a higher willingness to submit to a journal that publishes acceptance rates rather than rejection rates. However, the difference is no longer statistically significant.

Focusing on the interaction variables, the results suggest that – in the A-framing context – researchers without a PhD have diverging preferences w.r.t. the eagerness to submit to

another journal than the backup journal. They are more inclined to submit a HQ-paper to another journal than the backup journal and to accept the risk of lower acceptance rates.

We also find a negative effect of the self-confidence variable. Researchers that perceive the likelihood of having a paper accepted as less than 50% are less likely to take the risk of submitting to another journal than the backup journal in the A-framing.

	HQ Model			*SQ Model*		
	Coef.		**Std. Err.**	**Coef.**		**Std. Err.**
ASC Accept	2,2298	***	0,2662	1,7464	***	0,2252
noPhD	1,7148	***	0,6280	-0,8493	**	0,3516
Perceived P_A <50%	-0,9120	*	0,5045	-0,3093		0,3497
Other Continent	-0,2252		0,4689	-0,1754		0,3057
ASC Reject	1,7009	**	0,8607	1,7864	***	0,2853
noPhD	-0,6308		0,7642	-0,1654		0,5027
Perceived P_A <50%	-0,1445		0,6594	-0,1946		0,4673
Other Continent	-0,4164		0,6912	-1,0207	**	0,4452
Time	-0,0885	***	0,0186	-0,0979	***	0,0108
HighEditor	0,7628	***	0,0692	0,0647		0,0509
MedRef	0,3566	***	0,1106	0,0096		0,0689
HighRef	0,6899	***	0,1190	0,4451	***	0,0724
LowImpact	0,6630	***	0,0959	0,5375	***	0,0643
MedImpact	1,1747	***	0,1276	0,6703	***	0,0771
HighImpact	1,9844	***	0,1316	0,5375	***	0,0860
MedStand	0,4471	***	0,0781	0,2733	***	0,0486
HighStand	0,9554	***	0,1492	0,3270	***	0,0797
Low Prob. Acceptance	-0,5304	***	0,1032	-0,8659	***	0,1050
noPhD	0,3497	**	0,1466	0,1106		0,1519
Perceived P_A <50%	-0,0229		0,1497	0,0349		0,1433
Other Continent	0,0895		0,1316	0,1572		0,1442
Med. Prob. Acceptance	-0,2631	**	0,1153	-0,4229	***	0,0970
noPhD	0,3497	**	0,1466	0,1106		0,1519
Perceived P_A <50%	-0,0229		0,1497	0,0349		0,1433
Other Continent	0,0895		0,1316	0,1572		0,1442
High Prob. Rejection	0,0463		0,1212	-0,7137	***	0,1435
noPhD	0,0162		0,2122	-0,1890		0,2125
Perceived P_A <50%	-0,2361		0,1782	0,0865		0,1855
Other Continent	-0,2439		0,1816	0,1952		0,1770
Med. Prob. Rejection	0,1871		0,1351	-0,1884		0,1298
noPhD	0,0162		0,2122	-0,1890		0,2125
Perceived P_A <50%	-0,2361		0,1782	0,0865		0,1855
Other Continent	-0,2439		0,1816	0,1952		0,1770
Pseudo Loglik.	-2704,0102			3953,3934		
Pseudo R^2	0,4391			0,1799		
N	13164			13164		

legend: * $p < .10$; ** $p < .05$; *** $p < .01$.

Table 10: Estimation results for the ***HQ*** and ***SQ*** models with interaction variables.

5.2.2. The SQ-model

In the standard paper model, we find positive ASCs (see Table 10), indicating a preference to submit a paper in another journal than the backup journal. Moreover, both constants

are of comparable magnitude, suggesting that framing had no impact on the choice behavior of the researchers.

Furthermore, we find parameter estimates for the probability attributes that are very similar to those of the main-effects-only model. Irrespective of the framing context, researchers seem less inclined to take the risk of submitting a SQ-paper to a journal that features high rejection or low acceptance rates.

Compared to European or North American researchers, researchers from other continents are significantly more reluctant to submit a standard quality paper to a journal that announces rejection rates rather than acceptance rates. Thus, these researchers seem more sensitive to rejection rate information than European or North American researchers are, whereas information on acceptance rates does not trigger any significantly different response.

Finally, we also find that researchers without PhD have a more pronounced response in the model based on A-framing and are more likely to settle for the back-up journal. The pressure of getting a first paper published combined with strict deadlines might account for this result.

6. CONCLUSION

We used a stated choice experiment and applied it to the discipline of information sciences in order to gain insight into researchers' decisions regarding manuscript submissions. This experiment allowed us to investigate the relative importance of journal characteristics in convincing potential authors to submit to a particular journal. We study not only the impact of journal characteristics as such, but also the impact of two different communication strategies concerning those characteristics.

Turning to the relative importance of journal attributes, we find a difference between the decision to submit a high quality or a standard quality paper. For high quality papers, authors are looking for an outlet with a high impact factor and/or high standing, while the probability of acceptance or rejection of the paper is of lesser importance. For standard quality papers, authors are still interested in journals with as high an impact factor as possible, but considerations concerning the probability of acceptance or rejection are becoming equally important in this setting and standing is less important.

Next, looking at the potential impact of communication, we investigated whether researchers are more likely to select a journal with a positively formulated attribute (probability of acceptance) rather than a logically equivalent journal with a negatively

formulated attribute (probability of rejection). For a high quality paper, we find evidence of a so-called valence-consistent shift: respondents are more likely to submit to a journal that reports acceptance rates than to one that reports rejection rates, all else being equal. However, for a standard quality paper we do not find evidence of such a shift. Apparently, authors wanting to publish standard quality papers are less susceptible to framing effects in this setting. It is also interesting to note that the framing effects are mainly visible in the (un)desirability of the back-up journal and only to a lesser extent in the relative weight of the framed attribute. Moreover, the preferences for other journal characteristics are not affected as such.

Thus, if editors of journals want to continue to attract high quality papers, it might be advisable to communicate acceptance rates rather than rejection rates. At the very least, it is important to note that authors can be influenced by the positive or negative framing of journal attributes and that a well-thought-out communication strategy may be worthwhile.

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[1] We refer to Amaya-Amaya et al. (2008) and Bateman et al. (2002) for a more elaborate discussion of the choice experiment technique.
[2] From the 1230 researchers (distinct email addresses) that were contacted, several (56) emails turned out to be undeliverable due to mail addresses that were no longer in use.
[3] A two group mean-comparison t-test showed no statistically significant differences between the two subsamples at the 95% level.
[4] In principle, one ASC can be defined per profile. However, with unlabeled alternatives, we expect these constants to be equal. As this equality was not rejected by a hypothesis test, we decided to define only one constant.